

Name(s) of Risk Team Members: J. Scott , M. Bannon, R. Bonati, C. Watts, J. Famigeti			Point Value → Parameter ↓	1	2	3	4	5
Area/Facility Description Title: Collider-Accelerator Siemens and Westinghouse M.G. Sets (buildings 911, 928)			Occupancy or Use	≤once/year	≤once/month	≤once/week	≤once/shift	>once/shift
Area/Facility # (if applicable): Area-Wide FRA 8-06								
Area/Facility Description: Area-Wide for Siemens and Westinghouse M.G. Sets (buildings 911, 928)			Severity	First Aid Only	Medical Treatment	Lost Time	Partial Disability	Death or Permanent Disability
			Likelihood	Extremely Unlikely	Unlikely	Possible	Probable	Multiple
Approved by: <i>E. Lessard</i>								

Motor Control Centers; Panels And Wall Sockets	Shock or electrocution	All equipment is listed or reviewed by CEE; Tier 1 inspections; disconnected cable policy; installations comply with applicable codes; procedures; training; distribution drawings; LOTO; Kirk keys; Energized Electrical Work permits; committee reviews; qualified electricians and technicians; cabinet interlocks; postings; locked areas; guarding; work planning; grounding standards; emergency procedures; PPE; compliance with NFPA 70 E requirements, , contractors trained to NFPA 70 E and electrical safety, all OSHA violations repaired or remediated	4	4	2	32	See Note 1	4	4	2	32	
Motor Control Centers; Panels And Wall Sockets	Arc Flash	Procedures; training; PPE; Compliance with NFPA 70 E requirements, contractors trained to NFPA 70 E and electrical safety, all OSHA violations repaired or remediated	4	3	2	24	See Note 1	4	3	2	24	
Extension Chords; Temporary Wiring And Power Strips	Shock or electrocution	All equipment is listed or reviewed by CEE; Tier 1 inspections; disconnected cable policy; installations comply with applicable codes; procedures; training; distribution drawings; qualified electricians and technicians; GFCI; grounding standards; emergency procedures; PPE; compliance with NFPA 70 E requirements, contractors trained to NFPA 70 E and electrical safety, all OSHA violations repaired or remediated	4	3	3	24	See Note 1	4	3	2	24	
Lighting	Poor visibility	Tier 1 inspections; maintenance; emergency lighting; temporary lighting	3	2	3	18						
Lighting	Falls on same level	Tier 1 inspections; maintenance; emergency lighting; temporary lighting	3	3	3	27						
Lighting	Being struck against an object, such as a carpenter walking into a door frame, or cuts and bruises from working in tight spaces	Tier 1 inspections; maintenance; emergency lighting; temporary lighting	2	3	3	18						
Material Handling	Bodily reaction – injuries resulting from bending, climbing, loss of balance and slipping without falling	Use of dollies to eliminate manual material handling tasks, ergonomic reviews of work, effective supervision at the job site, training	3	3	3	27						
Manual Material Handling	Overexertion – injuries caused by excessive lifting, pushing, pulling, holding, carrying or throwing of an object	Gloves; hardhat; handcarts; dollies; training; safety shoes , SBMS on material handling weight limit of 44lbs.	4	3	3	36						
Chemical Handling	Eye exposure	Procedures; compliance with regulations; training; CMS inventory; MSDS; volume controls; PPE as required; locked or controlled areas; postings; labeling; proper containers; segregation; proper spill cleanup equipment available; Tier 1 inspections	3	4	2	24						
Chemical Handling	Inhalation exposure	Procedures; compliance with regulations; training; CMS inventory; MSDS; volume controls; PPE as required; locked or controlled areas; postings; labeling; proper containers; segregation; proper spill cleanup equipment available; Tier 1 inspections	3	3	2	18						
Chemicals	Fire; explosions	Procedures; compliance with regulations; training; CMS inventory; MSDS; volume controls; PPE as required; locked or controlled areas; postings; labeling; proper containers; segregation; proper spill cleanup equipment available; Tier 1 inspections	3	2	2	12						

Chemical Handling	Burns	Procedures, compliance with regulations, training, CMS inventory, MSDS, volume controls, Fire/Rescue group response, PPE as required, locked or controlled areas, postings, labeling, proper containers, segregation, spill cleanup equipment available, Tier 1 inspections	3	3	2	18					
Hazardous Material handling	PCB spill, or exposure	Inventory of PCB equipment and inspection Yearly, SBMS subject area and procedures, proper PPE, labeling.	3	3	2	12					
Remotely Operated Equipment	Becoming caught in or compressed by equipment	Postings; barriers; guards; maintenance; training; work planning; procedures; Tier 1 inspections	2	4	3	24					
Use of Electrical Powered Hand Tools	Shock or electrocution	All equipment is listed or reviewed by CEE; Tier 1 inspections; procedures; training; labeling; work planning; GFCI; grounding standards; double insulation	4	3	3	36					
Use of Electrical Powered Hand Tools	Being struck by an object, such as flying chips, rotating parts	PPE; training; maintenance; Tier 1 inspections; UL listed equipment; pre-inspections; equipment specific training; guarding; PPE; postings	4	2	3	24					
Use Of Hand Tools	Being struck against an object or cuts and bruises from working in tight spaces or near sharp surfaces	PPE; training; guarding	4	2	3	24					
Use of hand tools	Overexertion – injuries caused by excessive lifting, pushing, pulling, holding, carrying or throwing of an object	PPE, Training, work planning, procedures, proper equipment	4	3	3	36					
Noise	Hearing loss	Training; hearing protection; noise surveys; procedures; postings; medicals; engineered noise reduction; work planning; locked areas with limited access to authorized personnel only	4	3	4	48					
Confined Spaces	Entrapment, engulfment, exposure to dangerous atmospheres.	Barriers, postings, training, Confined Spaces Permits, work planning, procedures, Tier 1 inspections	2	5	2	20					
Walking – Working Surfaces	Falls on same level	PPE; Tier 1 inspections; work planning; P.E. scheduled maintenance; internal and external audits; posting; labeling; training; barriers; communication; lessons learned; safety checklist Walking and Working Surfaces	5	4	2	40					
Pressurized Systems	Being struck by an object, such as flying debris due to pressure release	Postings, PPE, maintenance, training, work planning, Cryogenic Safety Committee /ASSRC reviews, procedures, interlock systems, Certification/testing of pressure related equipment, Tier 1 inspections, LOTO, C-AD Chief ME reviews, codes and standards usage	4	3	3	36					
Hydraulics	Being struck by an object, such as flying debris due to pressure release	Design reviews, ESRC/ASSRC reviews, pressure testing, LOTO, work planning, PPE, training, procedures, posting labeling	3	4	3	36					
Hydraulics	Falls on same level	Design reviews, ESRC/ASSRC reviews, pressure testing, LOTO, work planning, Tier 1 inspections	3	4	3	36					
Hydraulics	Fire	Design reviews, ESRC/ASSRC reviews, proof testing, LOTO, work planning, PPE, training, Fire/Rescue Group response	3	4	2	24					

Moving Items with Cranes	Being struck by an object, such as a tool falling on a worker from above	Training, daily crane inspections prior to use, PE crane maintenance, PPE, certified rigging equipment, Tier 1 inspections, yearly rigging inspections, load weights and center of gravity known prior to lift, procedures, qualified riggers if required, critical lift and engineered lift requirements and reviews, warning alarms, postings, work planning, load testing, barriers	3	5	2	30					
Electrical Caged Area/ Rooms	Electrical shock	Locked areas, procedures, electrical safety training, control zones (e.g. signs and barriers), work permits, job safety analysis, LOTO, safety watch, energized electrical work permits, equipment design review, scheduled maintenance of equipment, fire rescue response, EMTs, work planning, PPE	2	5	2	20					
Batteries/UPS	Electrical shock, molten spray	PPE; procedures; training	4	2	2	16					
Batteries/UPS	Electrical shock, hydrogen gas explosion	PPE; procedures; training, ventilation	4	3	2	24					
Motor Generators, Liquid rheostat chain drive	Becoming caught in or compressed by equipment	Equipment specific training, machine guards, PPE, postings, maintenance, Tier 1 inspections, barriers, procedures, checklists	4	4	3	48					
Working with compressed air	Being struck by an object, such as flying debris due to pressure release	PPE, pressure reducing nozzles	3	3	2	18					
Work At Heights	Falls to lower level, such as falling from a ladder or over a railing	Postings; barriers; fall protection; maintenance; training; work planning; procedures; Tier 1 inspections; PPE; approved scaffolding and platforms; approved ladders; anti-slip surfaces	2	5	2	20					
Further Description of Controls Added to Reduce Risk:											
NOTE 1: A compliance plan to have all electrical installations accepted by an Authority Having Jurisdiction (AHJ), as per 29CFR1910 Subpart S, has been implemented by BNL. UL, CSA, LLC or other NRTL accepted equipment will be acquired at BNL for all future installations. Prior installations shall be reviewed and accepted by qualified AHJs. The plan must be completed by 2009.											
*Risk:	0 to 20	21 to 40	41-60		61 to 80		81 or greater				
	Negligible	Acceptable	Moderate		Substantial		Intolerable				